

REMARKS

By this Amendment, claims 1-2, 4, 6-7 and 10 have been amended, and claims 3, 5 and 8 have been canceled. Thus, claims 1-2, 4, 6-7, and 9-20 are pending.

Applicants appreciate the Examiner's indication that claims 11-20 are allowable. Based on the amendments presented herein and as discussed below, Applicants further submit that claims 1-2, 4, 6-7 and 9-10 are also allowable.

Claims 1-5, 9 and 10 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Burbidge et al. (U.S. Patent No. 6,101,200) in view of Johnson (U.S. Patent No. 5,832,014). Additionally, claims 6-8 have been rejected under 35 U.S.C. 103(a) as being unpatentable over Burbidge in view of Johnson, and further in view of Kuo et al. (U.S. Patent No. 6,222,861).

Claim 1 in the present application recites that a "feedback loop is operationally nested inside [a] tuning current loop and said tuning current loop is operationally nested inside [a] power control loop." In applicants' invention as further recited in claim 1, each of the feedback loop which operates in response to a sensed wavelength of light output from a laser device, the tuning current loop which adjusts a tuning current applied to the laser device, and the power control loop which controls a gain current applied to the laser device can all be operated during operation of the other loops.

Burbidge only discloses two feedback loops, and thus fails to teach or suggest the three loops as recited in Applicants' claims. Specifically, Burbidge teaches a first feedback loop which adjusts the drive current of the laser based on the power level of the laser, and a second feedback loop adjusts the temperature of the laser based on a wavelength error signal generated from light output from the backface of the laser.

Burbidge also discloses that these two loops are operated simultaneously. However, there is no mention or suggestion to add a third feedback loop to Burbidge's system, much less to arrange the three loops and provide the capability to operate the three loops concurrently as claimed in this application.

Although the rejection states that "it is logical that a third feedback loop may also operate simultaneously," there is absolutely no suggestion or motivation presented in Burbidge to do so. Simply because Burbidge's device may be capable of being modified to include another feedback loop is not a reasonable basis for concluding that such a modification is obvious. The law is well settled on this point. For example, in In re Mills, the Federal Circuit stated that "[w]hile [the prior art] apparatus may be capable of being modified to run the way [Applicants' invention] is claimed, there must be a suggestion or motivation in the reference to do so." 916 F.2d 680, 682, 16 U.S.P.Q.2d 1430, 1432 (1990).

Johnson also fails to teach or suggest three feedback loops arranged as recited in Applicants' claims and each loop being capable of being operated during operation of the other loops also as recited in the claims. In fact, Johnson only teaches one feedback loop for DBR lasers with one tuning section. In the embodiments shown in Figs. 1, 5 and 7 in Johnson, only the tuning current to the laser is adjusted in a feedback loop. Fig. 8 in Johnson shows a DBR laser with two tuning sections, with each section being associated with a feedback loop to control the respective drive current thereto. Again, there is no suggestion to provide three feedback loops arranged and functioning as claimed in this application.

While Johnson does disclose a gain section and a gain current input into the gain section, there is no mention of controlling the gain current with a feedback loop. Moreover, each of the feedback loops disclosed in Johnson are operated in response to

spontaneous emission (SE) detected in the corresponding tuning section. Johnson does not contemplate using anything other than SE as the basis for operating its disclosed feedback loops. Thus, there is no reason one of ordinary skill in the art would be prompted upon reading Johnson, with or without the knowledge of Burbidge's disclosure, to provide a third feedback loop, including a feedback loop which adjusts the gain current in response to the power level of the laser, which are also found lacking in Burbidge.

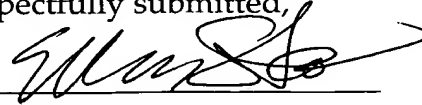
Kuo, the other reference cited in the rejections of Applicants' claims, adds nothing to the disclosures of Burbidge and Johnson to collectively render obvious the claimed invention. Kuo only teaches one feedback loop which adjusts the wavelength of the laser, and contains absolutely no hint or motivation of three feedback loops, much less one that adjusts a gain current, which is separate from a tuning current, in response to the power level of the laser. Thus, combining the disclosure of Kuo with those of Burbidge and Johnson is still insufficient to obviate Applicant's invention as recited in claim 1 and considered as a whole.

Claims 2, 4, 6, 7, 9, and 10 each depend ultimately from claim 1, and are thus patentably distinguishable over the prior art of record based on the features recited in claim 1 as discussed above, and are further distinguishable by the combination thereof with the features respectively recited in each claim.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

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